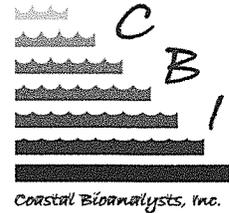


Client: Environmental Monitoring, Inc.
 Project ID: EMIN1116
 Client Sample ID: Holston WWTP Outfall 001/EMI #1534.25
 Permit No: VA0067351
 Sample Period: 12/5/11 to 12/8/11



Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To: Mr. Randy Porter Environmental Monitoring, Inc. P.O. Box 1190 Norton, VA 24273	Prepared By: Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director
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Acute Test Results*				
Species-Test Method	48-h LC50	95% C.L.	T.U. _{Ac}	NOAEC
<i>C. dubia</i> EPA 2002.0	>100	N/A	<1.00	N/A
<i>P. promelas</i> EPA 2000.0	>100	N/A	<1.00	N/A

Chronic Test Results*										
Species-Test Method	Endpoint	NOEC	LOEC	ChrV	PMSD	T.U. _c	IC25	48-h LC50	LC50 95% C.L.	T.U. _{Ac}
<i>C. dubia</i> EPA 1002.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Reproduction	100	>100	>100	26	1.00	>100	N/A	N/A	N/A
<i>P. promelas</i> EPA 1000.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	16	1.00	>100	N/A	N/A	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable.

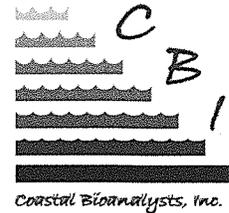
Acute Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	13.0	21.6	36.0	60.0	100
<i>C. dubia</i> EPA 2002.0	Survival (%):	100	100	100	100	100	100
<i>P. promelas</i> EPA 2000.0	Survival (%):	100	100	100	100	100	100

Chronic Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	4.60	10.0	22.0	46.0	100
<i>C. dubia</i> EPA 1002.0	Survival (%):	100	100	90	90	90	100
	Repro (# young):	28.8	25.9	23.6	25.7	22.7	26.3
<i>P. promelas</i> EPA 1000.0	Survival (%):	100	98	100	98	98	98
	Biomass (mg):	0.685	0.659	0.678	0.648	0.597	0.655

Test Information	Start Date/Time	Organism	Hatch/Harvest	Acclimation	Acclimation	Test
Species-Method	End Date/Time	Source	Date/Time	Temp.	Water	Aerated?
<i>C. dubia</i> EPA 2002.0	12/7/11 1520	CBI	12/6/11 1700	25° C	Mod. Hard Syn. FW	No
	12/9/11 1540	Stock	12/7/11 1010			
<i>P. promelas</i> EPA 2000.0	12/7/11 1510	CBI	12/1/11 1630	25° C	Mod. Hard Syn. FW	No
	12/9/11 1530	Stock	12/2/11 1630			
<i>C. dubia</i> EPA 1002.0	12/6/11 1220	CBI	12/5/11 2200	25° C	Mod. Hard Syn. FW	No
	12/13/11 1010	Stock	12/6/11 0600			
<i>P. promelas</i> EPA 1000.0	12/6/11 1210	CBI	12/5/11 1630	25° C	Mod. Hard Syn. FW	No
	12/13/11 1145	Stock	12/6/11 0830			



Client: Environmental Monitoring, Inc.
 Project ID: EMIN1116
 Client Sample ID: Holston WWTP Outfall 001/EMI #1534.25
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 Sample Period: 12/5/11 to 12/8/11



Sample/Dilution Water Data	Acute Test		Chronic Test			
	Sample	Dilution* Water	Sample		Dilution Water*	
			Mean	Std. Dev.	Mean	Std. Dev.
Water Quality Parameter (Units)						
Arrival Temperature (°C)	1	N/A	1	0	N/A	N/A
Use Temperature (°C)	25	25	25	0.5	25	0.5
Conductivity (µS/cm)	628	292	563	98	299	3.9
pH (S.U.)	7.87	7.65	7.59	0.25	7.64	0.03
Dissolved Oxygen (mg/l)	8.2	8.2	8.1	0.3	8.2	0
Total Hardness (mg/l as CaCO ₃)	244	82	209	32	92	7.6
Alkalinity (mg/l as CaCO ₃)	142	57	141	4.6	60	2.5
Total Residual Chlorine (mg/l)	<Q.L.	N/A	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH ₃ -N)	<1.0	N/A	0.6	1.0	N/A	N/A

*Dilution water = Moderately hard synthetic freshwater

Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1 st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
EMIN1116-A	12/5/11 0903	12/6/11 1210, 1220	N/A	Aerated 3 min
EMIN1116-B	12/6/11 0919	12/7/11 1155, 1200 12/7/11 1510, 1520*	12/8/11 1140, 1210	Aerated 4 min
EMIN1116-C	12/8/11 0850	12/9/11 1400, 1415	12/10/11 1215, 1255 12/11/11 1300, 1345 12/12/11 1045, 1350	Aerated 0-1 min

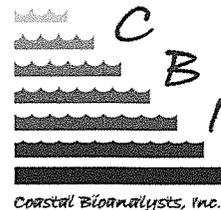
*Acute tests

Acute Test Water Quality (Mean/Std. Dev.)												
Test:	<i>C. dubia</i> 2002.0						<i>P. promelas</i> 2000.0					
% Conc:	Cont.	13.0	21.6	36.0	60.0	100	Cont.	13.0	21.6	36.0	60.0	100
Temp. (°C)	25	25	25	25	25	25	25	25	25	25	25	25
D.O. (mg/l)	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
pH (S.U.)	8.1	8.1	8.1	8.0	8.0	7.9	7.1	7.1	7.1	7.1	7.1	7.2
	0.1	0.1	0.1	0.2	0.2	0.3	1.1	1.1	1.0	1.0	0.9	0.9
	7.64	7.67	7.73	7.83	7.91	7.94	7.45	7.48	7.52	7.63	7.70	7.82
	0.06	0.04	0.02	0.02	0.05	0.06	0.22	0.19	0.20	0.18	0.13	0.06

Chronic Test Water Quality (Mean/Std. Dev.)												
Test:	<i>C. dubia</i> 1002.0						<i>P. promelas</i> 1000.0					
% Conc:	Cont.	4.60	10.0	22.0	46.0	100	Cont.	4.60	10.0	22.0	46.0	100
Temp. (°C)	25	25	25	25	25	25	24	24	24	24	24	24
D.O. (mg/l)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
pH (S.U.)	8.3	8.5	8.6	8.6	8.6	8.6	7.9	7.7	7.7	7.6	7.6	7.5
	0.2	0.3	0.4	0.4	0.5	0.5	0.3	0.5	0.5	0.5	0.5	0.6
	7.77	7.89	7.84	7.93	7.94	7.94	7.48	7.46	7.47	7.50	7.56	7.62
	0.21	0.31	0.33	0.35	0.35	0.36	0.12	0.15	0.14	0.15	0.14	0.16
Cond. (µS/cm)	296	309	321	347	398	516	298	310	321	349	403	525
	3.8	5.3	8.9	20	42	94	2.6	3.5	8.2	18	41	87



Client: Environmental Monitoring, Inc.
 Project ID: EMIN1116
 Client Sample ID: Holston WWTP Outfall 001/EMI #1534.25
 Permit No: VA0067351
 Sample Period: 12/5/11 to 12/8/11



Acute Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures					
Species-Method (Ref. Test Date)	Data Source	% Control Survival	48-h LC50	95% C.L./A.L. For LC50	RTT in Control?
<i>C. dubia</i> 2002.0 (11/21/11-11/23/11)	RTT	100	550	508-596	Yes
	CC	99	603	533-674	
<i>P. promelas</i> 2000.0 (11/12/11-11/14/11)	RTT	100	863	792-940	Yes
	CC	100	955	841-1068	

Chronic Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures									
Species-Method (Ref. Test Date)	Data Source	% Survival		Reproduction (# Young) or Biomass (mg)					RTT in Control?
		Cont.	NOEC	Cont.	NOEC	PMSD	IC25	IC25 A.L.	
<i>C. dubia</i> 1002.0 (11/15/11-11/21/11)	RTT	90	250	18.4	250	24	278	N/A	Yes
	CC	99	500	25.4	250	23	320	244-397	
<i>P. promelas</i> 1000.0 (11/8/11-11/15/11)	RTT	98	500	0.79	500	16	622	N/A	Yes
	CC	98	500	0.77	500	15	607	560-655	

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group.

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory. Unless noted below, these test results meet all requirements of NELAP.

APPROVED:


 Peter F. De Lisle, Ph.D.
 Technical Director

12/16/11
 Date

Deviations from, additions to, or exclusions from the test method, non-standard conditions or data qualifiers and, as appropriate, a statement of compliance/non-compliance: **NONE**

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value ± 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

Chronic Value (ChrV): The geometric mean of the NOEC and LOEC. Units are same as test concentration units.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

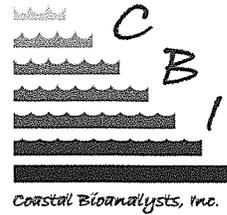
Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean ± 2 standard deviations).

IC25: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 25% reduction in test organism growth, reproduction, etc. The lower the IC25, the more toxic the chemical or sample. Units are same as test concentration units.

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.



Client: Environmental Monitoring, Inc.
Project ID: EMIN1116
Client Sample ID: Holston WWTP Outfall 001/EMI #1534.25
Permit No: VA0067351
Sample Period: 12/5/11 to 12/8/11



LOEC: Lowest-observable-effect-concentration. The lowest concentration of sample or chemical in a chronic test dilution series in which the test organisms exhibit a statistically significant reduction in any of the test end points (e.g. growth, survival, reproduction) compared to control organisms. Units are same as test concentration units.

PMSD: Percent Minimum Significant Difference: The minimum difference which can exist between a test treatment and the controls in a particular test and be statistically significant; a measure of test sensitivity. The lower the PMSD the more sensitive the test.

N/A: Not applicable.

N/D: Not determined or measured.

NOAEC: No-observable-acute-effect-concentration. The highest concentration of sample or chemical in an acute test dilution series in which the test organisms exhibit no statistically significant reduction in the test end point (e.g. survival) compared to control organisms. Units are same as test concentration units.

NOEC: No-observable-effect-concentration. The highest concentration of sample or chemical in a chronic test dilution series in which the test organisms exhibit no statistically significant reduction in any of the test end points (e.g. growth, survival, reproduction) compared to control organisms. Some regulatory definitions also require that the NOEC be less than the LOEC. Units are same as test concentration units.

Q.L.: Quantitation Limit. Level, concentration, or quantity of a target variable (analyte) that can be reported at a specified degree of confidence.

T.U.: Toxic units. Expresses the relative toxicity of an effluent in such a manner that the larger the toxic unit value the more toxic the effluent. $T.U._{ac} = 100/LC50$. $T.U._{chr} = 100/NOEC$. A dimensionless unit.



CERIODAPHNIA DUBIA STATIC ACUTE WET TEST
(ACD) FORM ETF1051D

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival	% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Control	C-a	5	5	5	100	34.0	3-a	5	5	5	100
	C-b	5	5	5			3-b	5	5	5	
	C-c	5	5	5			3-c	5	5	5	
	C-d	5	5	5			3-d	5	5	5	
13.0	1-a	5	5	5	100	40.0	4-a	5	5	5	100
	1-b	5	5	5			4-b	5	5	5	
	1-c	5	5	5			4-c	5	5	5	
	1-d	5	5	5			4-d	5	5	5	
21.0	2-a	5	5	5	100	100	5-a	5	5	5	100
	2-b	5	5	5			5-b	5	5	5	
	2-c	5	5	5			5-c	5	5	5	
	2-d	5	5	5			5-d	5	5	5	

NOTES:

Initials: PB PB PB
Count Time: 1520 0935 1540 Test end time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	24	25
	1	25	24	25
	2	25	24	25
	3	25	24	25
	4	25	24	25
	5	25	24	25
pH (S.U.)	C	7.70	7.63	7.59
	1	7.70	7.46	7.44
	2	7.75	7.72	7.71
	3	7.82	7.83	7.85
	4	7.85	7.92	7.95
	5	7.87	7.97	7.99
D.O. (mg/l)	C	8.2	8.0	8.0
	1	8.2	8.0	8.0
	2	8.2	8.0	8.0
	3	8.2	7.9	7.9
	4	8.2	7.9	7.9
	5	8.2	7.8	7.7
Conduct. (uS/cm)	C	299		298
	1	333		
	2	365		
	3	407		
	4	493		
	5	629		630
Replicate Meas.:		S	S	S
Initials:		PB	PB	PB
TRC (mg/l) in highest conc. at end of test:				NA

Species: Ceriodaphnia dubia

Source: CBI stock cultures ✓

Other: _____

Brood Date/time start: 12/6/11 1700

Release: _____

Date /time end: 12/7/11 1010

Acclimation: Water: Mod. hard syn. FW ✓

Other: _____

Temperature (°C): 25

Feeding: Prior to test: YCT/Selenastrum
During test: Not Fed

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 30 ml

Solution volume: 15 ml _____ ml

Number of replicates/treatment: 4

Initial number of daphnids/replicate: 5

Template number: 9

Set up: Date (Day 0): 12/7/11

Time water added: 1500

Time daphnids added: 1520

Set up by (Initials): PB

Peer Rev. by: PB/PB Date: 12/14/11

TEST I.D. EMJAD116 ACD

PIMEPHALES PROMELAS STATIC ACUTE WET TEST
48-H TEST (APP) FORM ETF1041E

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
13.0	1-A	10	10	10	100
	1-B	10	10	10	
21.4	2-A	10	10	10	100
	2-B	10	10	10	
34.0	3-A	10	10	10	100
	3-B	10	10	10	
60.0	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		PB	PB	PB	
Count Time:		1510	0930	1530	*Test End Time

Species: *Pimephales promelas*

Source: CBI stock cultures

Other: _____

Hatch: Date/time start: 12/1/11 1630

Date/time end: 12/2/11 1630

Acclimation: Water: Mod. hard syn. FW

Other: _____

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: Not fed

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: 400 ml _____ ml

Solution volume: 400 ml _____ ml

Number of replicates/treatment: 2

Initial number of fish/replicate: 10

Set up: Date (Day 0): 12/7/11

Time water added: 1500

Time fish added: 1510

Set up by (Initials): PB

NOTES:

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	24	25
	1	25	24	25
	2	25	24	25
	3	25	24	25
	4	25	24	25
	5	25	24	25
pH (S.U.)	C	7.70	7.38	7.28
	1	7.70	7.39	7.36
	2	7.75	7.43	7.38
	3	7.82	7.59	7.47
	4	7.85	7.64	7.62
	5	7.87	7.83	7.75
D.O. (mg/l)	C	8.2	6.1	7.1
	1	8.2	6.1	6.9
	2	8.2	6.2	6.8
	3	8.2	6.3	6.8
	4	8.2	6.4	6.9
	5	8.2	6.4	7.0
Conduct. (uS/cm)	C	299		300
	1	333		
	2	365		
	3	407		
	4	493		
	5	629		631
Replicate Measured:		A	B	A
Initials:		PB	PB	PB
TRC (mg/l) in highest conc. at end of test:				NA

Peer Rev. by: PB/GS Date: 12/14/11 TEST I.D. EMTN/116 -APP

BASELINE TEST INFO -- *Ceriodaphnia* 3-BROOD TEST

Coastal Bioanalysts, Inc
Form ETF0051E
Effective Date: 2/1/09

TEST ORGANISM INFO

Species: *Ceriodaphnia dubia*

Acclimation: Water: Mod. hard syn. FW

Source: CBI Stock Cultures

Other: _____

Temp. (°C): 25

Brood Release: 12/5/11 2200
(start date/time)

Feeding Prior to Test: *Selenastrum* + YCT mix¹

Brood Release: 12/6/11 0600
(end date/time)

Feeding During Test: *Selenastrum* + YCT mix¹

TEST DESIGN

Test Chamber: ~30 ml glass vial

Illumination: 16:8 L:D 10-20 $\mu\text{E}/\text{m}^2/\text{s}$

Other: _____

Number of Replicates/Concentration: 10

Solution Vol: 15 ml

Initial Number of Daphnids/Replicate: 1

Other: _____

Template No. 3

TEST SET UP (Day 0)

Set Up Date: 12/6/11

Time Water Added: 1205

Set Up By: AG

Time Animals Added: 1220

NOTES

¹Food added daily to dilution water and test solutions at renewal for a final feeding level of 0.2 ml of YCT + algae mix per chamber (chamber algae concentration 2-2.3E5 cells/ml)

Peer Review by: PD Date: 12/14/11

Test I.D. EMIN(116) -CCD

Parameter	Treatment	Day 0		Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7	
		Initial	Final														
T	C	25	25	25	25	25	25	25	25	24	24	24	24	24	24	24	24
E	1	25	25	25	25	25	25	25	25	24	24	24	24	24	24	24	24
M	2	25	25	25	25	25	25	25	25	24	24	24	24	24	24	24	24
P	3	25	25	25	25	25	25	25	25	24	24	24	24	24	24	24	24
(%)	4	25	25	25	25	25	25	25	25	24	24	24	24	24	24	24	24
	5	25	25	25	25	25	25	25	25	24	24	24	24	24	24	24	24
pH	C	7.48	8.14	7.56	7.89	7.57	7.91	7.47	7.98	7.61	7.87	7.56	7.98	7.42	7.42	7.91	7.91
	1	7.52	8.37	7.56	8.10	7.65	8.29	7.41	8.14	7.67	8.15	7.64	8.20	7.59	8.41	8.41	8.41
	2	7.54	8.34	7.58	8.21	7.67	8.39	7.41	8.11	7.63	8.13	7.64	8.29	7.57	8.13	8.13	8.13
	3	7.57	8.36	7.64	8.24	7.71	8.32	7.40	8.10	7.63	8.31	7.64	8.28	7.44	8.04	8.04	8.04
	4	7.61	8.34	7.73	8.27	7.77	8.33	7.58	8.15	7.63	8.31	7.64	8.28	7.36	8.14	8.14	8.14
	5	7.66	8.38	7.83	8.33	7.84	8.39	7.55	8.12	7.62	8.17	7.63	8.27	7.25	8.10	8.10	8.10
D.O.	C	8.2	8.7	8.2	8.2	8.2	8.4	8.2	8.5	8.2	8.3	8.3	8.3	8.2	8.0	8.0	8.0
	1	8.2	9.3	8.2	8.4	8.2	8.4	8.2	8.7	8.2	8.6	8.3	8.5	8.7	8.3	8.3	8.3
	2	8.2	9.4	8.2	8.5	8.2	8.7	8.2	8.8	8.2	8.8	8.3	8.9	8.7	8.6	8.6	8.6
	3	8.2	9.5	8.2	8.6	8.2	8.7	8.2	8.7	8.2	9.1	8.3	8.9	8.3	8.6	8.6	8.6
	4	8.2	9.5	8.2	8.6	8.2	8.7	8.2	8.8	8.2	9.3	8.3	8.9	8.3	8.6	8.6	8.6
	5	8.2	9.8	8.2	8.6	8.2	8.7	8.2	8.6	8.2	8.8	8.3	8.9	8.3	8.5	8.5	8.5
C	C	297		301		296		290		297		299		292			
O	1	314		317		313		307		306		307		305			
N	2	330		332		329		313		315		313		314			
D	3	367		369		369		331		330		331		330			
	4	441		442		444		344		363		367		364			
(uS/cm)	5	611		613		603		447		436		440		439			
Replicate:		S	B	S	J	S	E	S	H	S	D	S	S	S	S	S	A
Initials:		AG	AG	AG	AG	AG	AG	AG	BH	BH	AG	AG	AG	AG	AG	AG	AG

NOTE: D.D. values > 8.3 mg/L due to photosynthetic activity of algal food. 100

C=	0	%	2=	10.0	%	4=	46.4	%
1=	4.60	%	3=	20.0	%	5=	100	%

TEST I.D. EMZAJ1114

REPRODUCTION/SURVIVAL DATA - Ceriodaphnia 3-BROOD TEST

Coastal Bioanalysts, Inc
Form ETF0053E
Effective Date: 2/12/10

Treatment	REP	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Treatment	REP	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
C	A	0	0	0	4	14	0	16	3	A	0	0	0	4	12	0	12
	B	0	0	0	5	12	0	16		B	0	0	0	4	12	0	16
	C	0	0	0	0	10	14	0		C	0	0	0	6	0	0	0
	D	0	0	0	5	8	0	14		D	0	0	0	5	10/X	-	-
	E	0	0	0	5	10	0	14		E	0	0	0	5	12	0	16
	E	0	0	0	4	12	0	16		F	0	0	0	4	12	0	12
	G	0	0	0	5	10	0	14		G	0	0	0	0	10	0	14
	H	0	0	0	4	10	0	16		H	0	0	0	6	12	0	12
	I	0	0	0	4	14	0	14		I	0	0	0	6	12	0	12
	J	0	0	0	2	12	0	8		J	0	0	0	3	12	0	12
1	A	0	0	0	4	0	0	5	4	A	0	0	0	4	12	0	12
	B	0	0	0	5	14	0	14		B	0	0	0	0	0	10	12
	C	0	0	0	0	8	16	3		C	0	0	0	5	8	0	14
	D	0	0	0	4	8	0	12		D	0	0	0	4	0	8	12
	E	0	0	0	5	10	0	12		E	0	0	0	5	10	0	16
	F	0	0	0	4	10	0	12		F	0	0	0	5	0	6	4
	G	0	0	0	4	8	0	14		G	0	0	0	4	12	0	12
	H	0	0	0	4	10	0	14		H	0	0	0	4	0	0/X	-
	I	0	0	0	5	12	0	14		I	0	0	0	4	6	0	10
	J	0	0	0	4	12	0	12		J	0	0	0	4	12	12	0
2	A	0	0	0	6	10	0	8	5	A	0	0	0	4	12	0	14
	B	0	0	0	5	10	0	8		B	0	0	0	4	10	0	16
	C	0	0	0	3	0/X	-	-		C	0	0	0	3	0	10	0
	D	0	0	0	2	8	0	16		D	0	0	0	3	12	0	14
	E	0	0	0	5	12	0	14		E	0	0	0	5	10	0	16
	F	0	0	0	4	8	0	0		F	0	0	0	5	12	0	10
	G	0	0	0	6	12	0	14		G	0	0	0	5	10	0	12
	H	0	0	0	4	10	0	10		H	0	0	0	4	12	0	14
	I	0	0	0	4	14	0	14		I	0	0	0	3	3	0	12
	J	0	0	0	5	8	0	16		J	0	0	0	4	8	0	14

Count/Renewal Time:	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7
Initials:	1155	1210	1415	1215	1345	1350	1010
	AG	Wja	GB	BH	Wja	GB	LR

*Counts are number of live offspring at renewal; dead adults indicated by a "X" with dashes (-) for subsequent test days. Time of final count (day 6 or 7) = test end time. Males, if present, identified (M) at test end. See printout of statistical analyses for total number of offspring by replicate.

Note: "Spl. Vol." = Volume sample added to total volume of 200 ml for preparation of dilutions.

NOTES:

Ceriodaphnia Survival and Reproduction Test-7 Day Survival

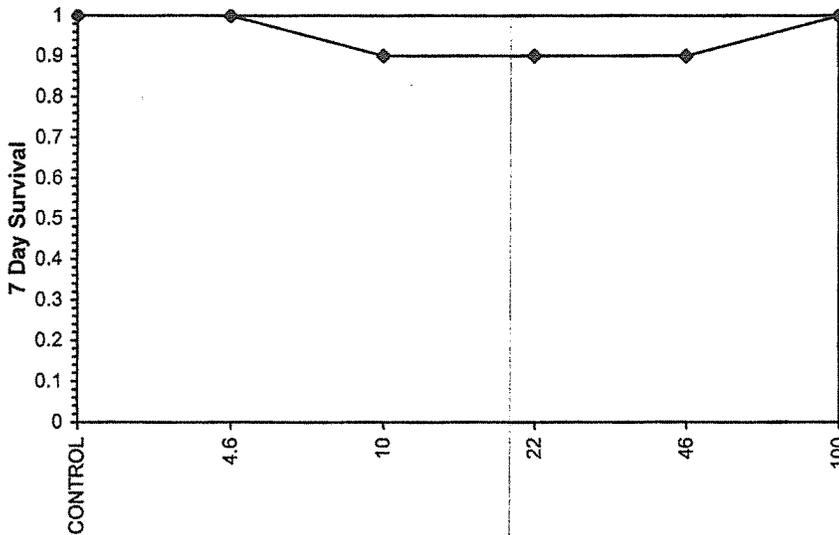
Start Date: 12/6/2011 12:20 Test ID: EMIN1116CD Sample ID: SCOTT CO/HOLSTON WWTP 001
 End Date: 12/13/2011 10:10 Lab ID: CBI Sample Type: WW
 Sample Date: Protocol: EPAF 94-EPA Freshwater Test Species: CD-Ceriodaphnia dubia
 Comments: DATA ENTERED BY PB

Conc-%	1	2	3	4	5	6	7	8	9	10
CONTROL	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
4.6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
10	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
46	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000
100	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Conc-%	Mean	N-Mean	Resp	Not Resp	Total	N	Fisher's Exact P	1-Tailed Critical
CONTROL	1.0000	1.0000	0	10	10	10		
4.6	1.0000	1.0000	0	10	10	10	1.0000	0.0500
10	0.9000	0.9000	1	9	10	10	0.5000	0.0500
22	0.9000	0.9000	1	9	10	10	0.5000	0.0500
46	0.9000	0.9000	1	9	10	10	0.5000	0.0500
100	1.0000	1.0000	0	10	10	10	1.0000	0.0500

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Fisher's Exact Test	100	>100		1

Dose-Response Plot



Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 12/6/2011 12:20 Test ID: EMIN1116CD Sample ID: SCOTT CO/HOLSTON WWTP 001
 End Date: 12/13/2011 10:10 Lab ID: CBI Sample Type: WW
 Sample Date: Protocol: EPAF 94-EPA Freshwater Test Species: CD-Ceriodaphnia dubia
 Comments: DATA ENTERED BY PB

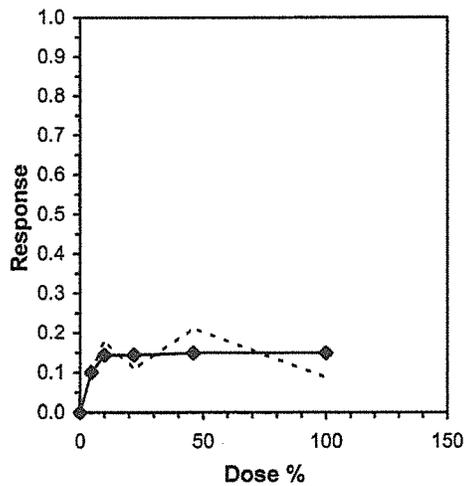
Conc-%	1	2	3	4	5	6	7	8	9	10
CONTROL	34.000	33.000	26.000	27.000	29.000	26.000	29.000	30.000	32.000	22.000
4.6	9.000	33.000	27.000	24.000	27.000	26.000	26.000	28.000	31.000	28.000
10	24.000	23.000	3.000	26.000	31.000	12.000	32.000	24.000	32.000	29.000
22	28.000	32.000	6.000	15.000	33.000	32.000	24.000	30.000	30.000	27.000
46	28.000	22.000	27.000	24.000	31.000	15.000	28.000	4.000	20.000	28.000
100	30.000	30.000	13.000	29.000	31.000	29.000	27.000	30.000	18.000	26.000

Conc-%	Mean	N-Mean	Transform: Untransformed					Rank Sum	1-Tailed Critical	Isotonic	
			Mean	Min	Max	CV%	N			Mean	N-Mean
CONTROL	28.800	1.0000	28.800	22.000	34.000	12.763	10			28.800	1.0000
4.6	25.900	0.8993	25.900	9.000	33.000	24.986	10	90.50	75.00	25.900	0.8993
10	23.600	0.8194	23.600	3.000	32.000	39.709	10	87.00	75.00	24.650	0.8559
22	25.700	0.8924	25.700	6.000	33.000	33.874	10	100.00	75.00	24.650	0.8559
46	22.700	0.7882	22.700	4.000	31.000	35.671	10	79.00	75.00	24.500	0.8507
100	26.300	0.9132	26.300	13.000	31.000	22.817	10	97.00	75.00	24.500	0.8507

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Kolmogorov D Test indicates non-normal distribution (p <= 0.01)	1.51787	1.035	-1.5041	1.87265
Bartlett's Test indicates equal variances (p = 0.14)	8.29735	15.0863		
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		1

Linear Interpolation (200 Resamples)				
Point	%	SD	95% CL	Skew
IC05*	2.2841			
IC10*	4.5683			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			

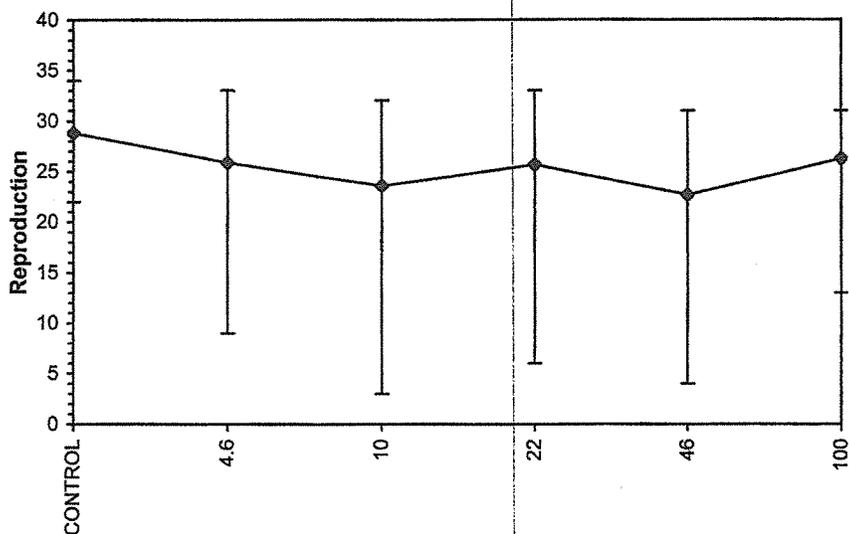
* indicates IC estimate less than the lowest concentration



Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 12/6/2011 12:20 Test ID: EMIN1116CD Sample ID: SCOTT CO/HOLSTON WWTP 001
End Date: 12/13/2011 10:10 Lab ID: CBI Sample Type: WW
Sample Date: Protocol: EPAF 94-EPA Freshwater Test Species: CD-Ceriodaphnia dubia
Comments: DATA ENTERED BY PB

Dose-Response Plot



Ceriodaphnia Survival and Reproduction Test-Reproduction

Start Date: 12/6/2011 12:20 Test ID: EMIN1116CD Sample ID: SCOTT CO/HOLSTON WWTP 001
 End Date: 12/13/2011 10:10 Lab ID: CBI Sample Type: WW
 Sample Date: Protocol: EPAF 94-EPA Freshwater Test Species: CD-Ceriodaphnia dubia
 Comments: DATA ENTERED BY PB

Conc-%	1	2	3	4	5	6	7	8	9	10
CONTROL	34.000	33.000	26.000	27.000	29.000	26.000	29.000	30.000	32.000	22.000
4.6	9.000	33.000	27.000	24.000	27.000	26.000	26.000	28.000	31.000	28.000
10	24.000	23.000	3.000	26.000	31.000	12.000	32.000	24.000	32.000	29.000
22	28.000	32.000	6.000	15.000	33.000	32.000	24.000	30.000	30.000	27.000
46	28.000	22.000	27.000	24.000	31.000	15.000	28.000	4.000	20.000	28.000
100	30.000	30.000	13.000	29.000	31.000	29.000	27.000	30.000	18.000	26.000

Conc-%	Mean	N-Mean	Transform: Untransformed			CV%	N	1-Tailed		
			Mean	Min	Max			t-Stat	Critical	MSD
CONTROL	28.800	1.0000	28.800	22.000	34.000	12.763	10			
4.6	25.900	0.8993	25.900	9.000	33.000	24.986	10	0.887	2.287	7.475
10	23.600	0.8194	23.600	3.000	32.000	39.709	10	1.591	2.287	7.475
22	25.700	0.8924	25.700	6.000	33.000	33.874	10	0.948	2.287	7.475
46	22.700	0.7882	22.700	4.000	31.000	35.671	10	1.866	2.287	7.475
100	26.300	0.9132	26.300	13.000	31.000	22.817	10	0.765	2.287	7.475

Auxiliary Tests		Statistic	Critical	Skew	Kurt					
Kolmogorov D Test indicates non-normal distribution (p <= 0.01)		1.51787	1.035	-1.5041	1.87265					
Bartlett's Test indicates equal variances (p = 0.14)		8.29735	15.0863							
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	7.47496	0.25955	46.36	53.4296	0.50889	5, 54

FOR MSD ONLY PD

BASELINE TEST INFO - FATHEAD 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0041C
Effective Date: 2/1/09

TEST ORGANISM INFO

Species: *Pimephales promelas*
Source: CBI Stock Cultures:
Other: _____

Acclimation: Water: Mod. hard syn. FW
Other: _____
Temp. (°C): 25

Hatch Date/Time: 12/05/11 1630
(start)
Hatch Date/Time: 12/06/11 0830
(end)

Feeding Prior to Test: *Artemia ad libitum* 2X/day

Feeding During Test: *Artemia* 0.15 g/rep 2X/day

Arrival Date: NA
(non-CBI)

TEST DESIGN

Test Chamber: 1000 ml Tri-pour beaker
Other: _____
Solution Vol: 500 ml
Other: _____

Illumination: 16:8 L:D 10-20 uE/m²/s

Number of Replicates/Concentration: 4

Initial Number of Fish/Replicate: 10

TEST SET UP (Day 0)

Set Up Date: 12/06/11
Set Up By: laja

Time Water Added: 1200

Time Animals Added: 1210

NOTES

Peer Review by AS/KB Date 12/14/11

Test I.D. EMT1114 -CPP

Parameter	Treat-ment	Day 0		Day 1		Day 2		Day 3		Day 4		Day 5		Day 6		Day 7		
		Initial	Final															
T	C	25	25	25	24	25	24	25	24	25	24	24	24	24	24	24	24	24
E	1	25	25	25	24	25	24	25	24	25	24	24	24	24	24	24	24	24
M	2	25	25	25	24	25	24	25	24	25	24	24	24	24	24	24	24	24
P	3	25	25	25	24	25	24	25	24	25	24	24	24	24	24	24	24	24
(°C)	4	25	25	24	24	25	24	25	24	25	24	24	24	24	24	24	24	24
	5	25	25	24	24	25	24	25	24	25	24	24	24	24	24	24	24	24
pH	C	7.60	7.55	7.50	7.40	7.54	7.40	7.54	7.40	7.54	7.40	7.54	7.40	7.54	7.40	7.54	7.40	7.54
	1	7.62	7.37	7.54	7.45	7.58	7.45	7.58	7.45	7.58	7.45	7.58	7.45	7.58	7.45	7.58	7.45	7.58
	2	7.64	7.37	7.57	7.47	7.59	7.47	7.59	7.47	7.59	7.47	7.59	7.47	7.59	7.47	7.59	7.47	7.59
(S.U.)	3	7.68	7.48	7.64	7.50	7.62	7.50	7.62	7.50	7.62	7.50	7.62	7.50	7.62	7.50	7.62	7.50	7.62
	4	7.71	7.53	7.74	7.58	7.75	7.58	7.75	7.58	7.75	7.58	7.75	7.58	7.75	7.58	7.75	7.58	7.75
	5	7.74	7.77	7.85	7.41	7.82	7.41	7.82	7.41	7.82	7.41	7.82	7.41	7.82	7.41	7.82	7.41	7.82
D.O.	C	8.2	7.9	8.2	7.8	8.0	7.8	8.0	7.8	8.2	7.8	8.2	7.8	8.2	7.8	8.2	7.8	8.2
	1	8.2	7.8	8.2	7.7	7.9	7.7	7.9	7.7	8.2	7.7	8.2	7.7	8.2	7.7	8.2	7.7	8.2
	2	8.2	7.6	8.2	7.6	7.7	7.6	7.7	7.6	8.2	7.6	8.2	7.6	8.2	7.6	8.2	7.6	8.2
(mg/l)	3	8.2	7.4	8.2	7.5	7.6	7.5	7.6	7.5	8.2	7.5	8.2	7.5	8.2	7.5	8.2	7.5	8.2
	4	8.2	7.6	8.3	7.5	7.6	7.5	7.6	7.5	8.2	7.5	8.2	7.5	8.2	7.5	8.2	7.5	8.2
	5	8.2	7.7	8.3	7.5	7.5	7.5	7.5	7.5	8.2	7.5	8.2	7.5	8.2	7.5	8.2	7.5	8.2
C	C	299	300	300	299	299	300	299	300	299	300	299	300	299	300	299	300	299
O	1	314	315	315	308	308	308	308	308	306	306	309	309	307	307	307	307	307
N	2	331	332	332	327	327	327	327	327	315	315	310	310	313	313	313	313	313
D	3	370	369	369	366	366	366	366	366	333	333	334	334	333	333	333	333	333
	4	445	449	449	445	445	445	445	445	367	367	367	367	366	366	366	366	366
(uS/cm)	5	620	625	625	605	605	605	605	605	443	443	457	457	449	449	449	449	449
Replicate:	D	B	C	A	F	A	F	A	F	C	D	B	D	D	A	C	A	B
Initials:	bja	GB	bja	RS	RS	RS	RS	RS	RS	BH	BH	BH	AG	AG	GB	AG	AG	GB

C=	0	%	2=	10.0	%	4=	46.0	%
1=	4.60	%	3=	22.0	%	5=	14.0	%

TEST I.D. EM11114 -CPP

Treatment ¹	Rep	Number of Live Fish							Fish Dry Weight Data (mg) ²			Notes
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Pan #	Tot. Wt.	Tare Wt.	
C CONTROL	A	10	10	10	10	10	10	10	1	12.12	10.68	
	B	10	10	10	10	10	10	10	2	13.75	8.74	
	C	10	10	10	10	10	10	10	3	15.47	7.75	
	D	10	10	10	10	10	10	10	4	13.13	7.20	
1 C: 4.6090 V: 73.6	A	10	10	10	10	10	10	10	5	14.01	8.28	
	B	10	10	10	9	9	9	9	4	14.29	7.24	
	C	10	10	10	10	10	10	10	7	15.59	8.47	
	D	10	10	10	10	10	9	10	8	13.36	4.91	
2 C: 10.090 V: 160	A	10	10	10	10	10	10	10	9	13.25	4.45	
	B	10	10	10	10	10	10	10	10	15.12	8.07	
	C	10	10	10	10	10	10	10	11	14.80	8.46	
	D	10	10	10	10	10	10	10	12	16.17	9.05	
3 C: 22.090 V: 352	A	10	10	10	10	10	10	10	13	15.44	8.22	
	B	10	10	10	10	10	10	10	14	15.46	9.14	
	C	10	10	10	10	10	10	10	15	15.11	8.87	
	D	10	10	10	9	9	9	9	16	14.41	8.26	
4 C: 46.090 V: 736	A	10	10	10	10	10	10	10	17	15.27	9.04	
	B	10	10	10	10	10	10	10	18	14.20	7.90	
	C	10	10	10	10	10	10	10	19	14.77	8.23	
	D	10	10	10	9	9	9	9	20	13.24	8.43	
5 C: 10070 V: 1400	A	10	10	10	10	10	10	10	21	15.38	8.14	
	B	10	10	10	10	10	10	10	22	15.15	8.95	
	C	10	10	10	10	10	10	10	23	15.38	9.48	
	D	10	10	10	10	10	10	10	24	12.18	10.43	
Renewal/Count Time:	1300	1140	1400	1255	1300	1045	1145	Tare Wt: Date: 11/24/07		Cal. Chk (100.00 mg) ³ : 100.01	Init: 10	
Initials:	big	FS	FS	OH	big	AC	big	Tot. Wt: Date: 11/24/07		Cal. Chk (100.00 mg) ³ : 100.01	Init: 10	

¹ C = Concentration; V = Volume (ml) sample added to total volume of 1000 ml for preparation of solutions. See printout of statistical analyses for biomass weights. ² Time final count = test end time. ³ True value ± estimated uncertainty of calib. weight (NIST traceable annual certification) = 100.01 ± 0.01 mg

Larval Fish Growth and Survival Test-7 Day Survival

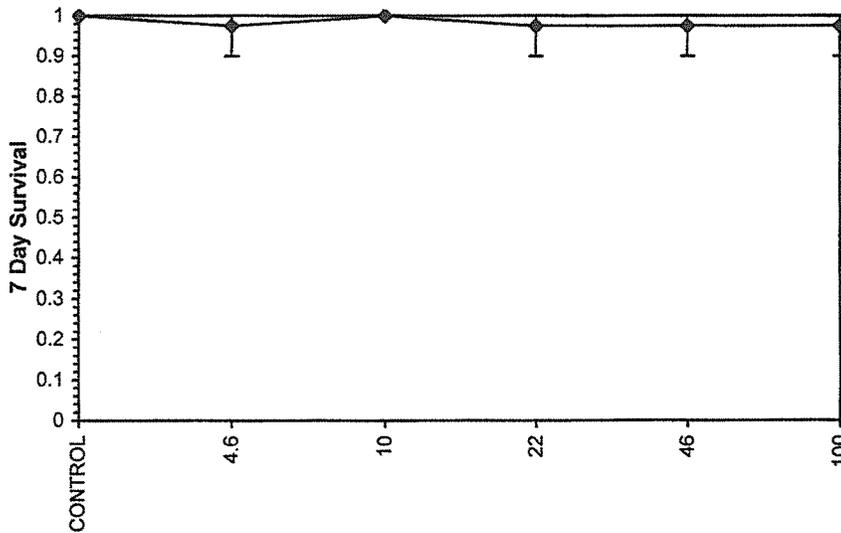
Start Date: 12/6/2011 12:10 Test ID: EMIN1116PP Sample ID: SCOTT CO/HOLSTON WWTP 001
 End Date: 12/13/2011 11:45 Lab ID: CBI Sample Type: WW
 Sample Date: Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments: DATA ENTERED BY PB

Conc-%	1	2	3	4
CONTROL	1.0000	1.0000	1.0000	1.0000
4.6	1.0000	0.9000	1.0000	1.0000
10	1.0000	1.0000	1.0000	1.0000
22	1.0000	1.0000	1.0000	0.9000
46	1.0000	1.0000	1.0000	0.9000
100	1.0000	0.9000	1.0000	1.0000

Conc-%	Mean	N-Mean	Transform: Arcsin Square Root				N	Rank Sum	1-Tailed Critical
			Mean	Min	Max	CV%			
CONTROL	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4		
4.6	0.9750	0.9750	1.3713	1.2490	1.4120	5.942	4	16.00	10.00
10	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
22	0.9750	0.9750	1.3713	1.2490	1.4120	5.942	4	16.00	10.00
46	0.9750	0.9750	1.3713	1.2490	1.4120	5.942	4	16.00	10.00
100	0.9750	0.9750	1.3713	1.2490	1.4120	5.942	4	16.00	10.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution ($p \leq 0.01$)	0.66392	0.884	-1.5103	0.921
Equality of variance cannot be confirmed				
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		1

Dose-Response Plot



Larval Fish Growth and Survival Test-7 Day Biomass

Start Date: 12/6/2011 12:10 Test ID: EMIN1116PP Sample ID: SCOTT CO/HOLSTON WWTP 001
 End Date: 12/13/2011 11:45 Lab ID: CBI Sample Type: WW
 Sample Date: Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
 Comments: DATA ENTERED BY PB

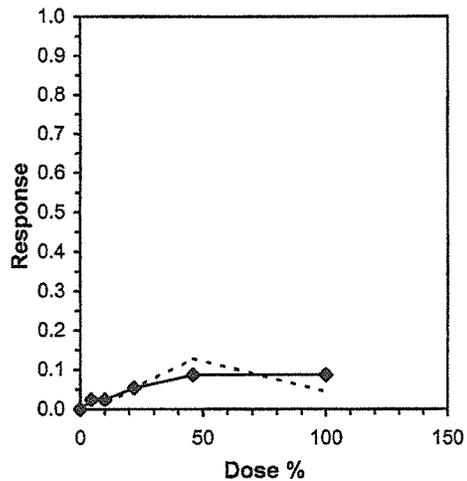
Conc-%	1	2	3	4
CONTROL	0.6740	0.7010	0.7720	0.5930
4.6	0.5730	0.7050	0.7120	0.6450
10	0.6600	0.7050	0.6340	0.7120
22	0.7220	0.6320	0.6240	0.6150
46	0.6210	0.6300	0.6540	0.4810
100	0.7240	0.6200	0.5700	0.7050

Conc-%	Mean	N-Mean	Transform: Untransformed					N	t-Stat	1-Tailed Critical	MSD	Isotonic	
			Mean	Min	Max	CV%	Mean					N-Mean	
CONTROL	0.6850	1.0000	0.6850	0.5930	0.7720	10.797	4				0.6850	1.0000	
4.6	0.6588	0.9617	0.6588	0.5730	0.7120	9.805	4	0.577	2.410	0.1097	0.6683	0.9755	
10	0.6778	0.9894	0.6778	0.6340	0.7120	5.484	4	0.159	2.410	0.1097	0.6683	0.9755	
22	0.6483	0.9464	0.6483	0.6150	0.7220	7.660	4	0.808	2.410	0.1097	0.6483	0.9464	
46	0.5965	0.8708	0.5965	0.4810	0.6540	13.118	4	1.945	2.410	0.1097	0.6256	0.9133	
100	0.6548	0.9558	0.6548	0.5700	0.7240	11.053	4	0.665	2.410	0.1097	0.6256	0.9133	

Auxiliary Tests	Statistic	Critical	Skew	Kurt						
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95141	0.884	-0.4302	-0.7177						
Bartlett's Test indicates equal variances (p = 0.87)	1.87296	15.0863								
Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.10967	0.1601	0.00391	0.00414	0.47682	5, 18

Linear Interpolation (200 Resamples)

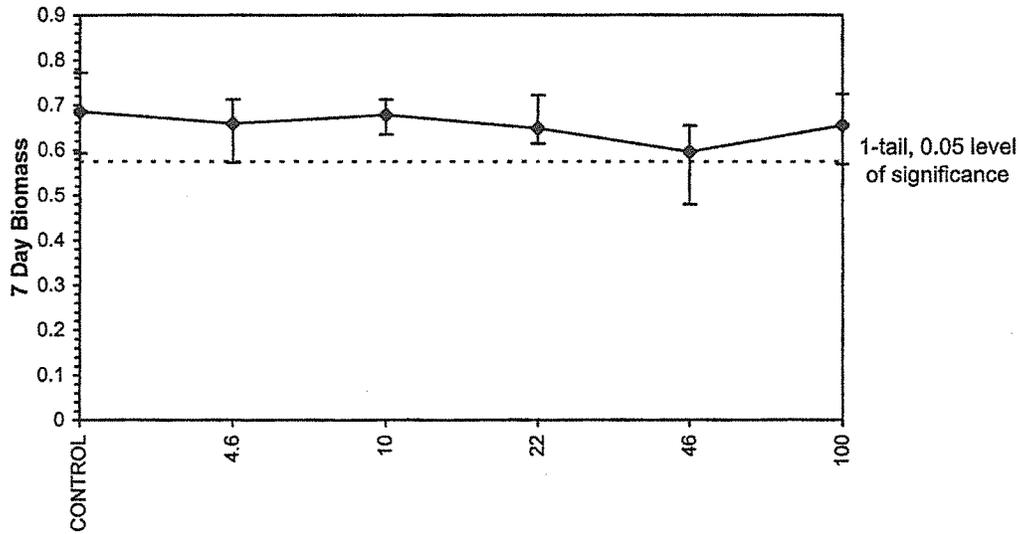
Point	%	SD	95% CL(Exp)	Skew
IC05	20.500			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



Larval Fish Growth and Survival Test-7 Day Biomass

Start Date: 12/6/2011 12:10 Test ID: EMIN1116PP Sample ID: SCOTT CO/HOLSTON WWTP 001
End Date: 12/13/2011 11:45 Lab ID: CBI Sample Type: WW
Sample Date: Protocol: EPAF 94-EPA Freshwater Test Species: PP-Pimephales promelas
Comments: DATA ENTERED BY PB

Dose-Response Plot



EFFLUENT SAMPLE & DILUTION WATER CHARACTERISTICS
 FRESHWATER TESTS

FORM ETF2031E

COASTAL BIOANALYSTS, INC
 EFFECTIVE DATE: 1/14/10

INITIAL SAMPLE CHARACTERIZATION ¹									
Sample Bottle ²	A-1	B-1	C-1						NOTES: TRC corrected for potential positive interference by Mn or Cr with KI & NaAsO ₂
Tot. Res. Chlorine (mg/l)	<QL	<QL	<QL						
Hardness (mg/l CaCO ₃)	204	244	180						
Alkalinity (mg/l CaCO ₃)	136	142	145						
NH ₃ -N (mg/l)	1.0	1.0	1.7						
Color/Appearance ³	C	C	0.35m						
Obvious Odor?	NO	NO	NO						
Date/Time	12/16/08 5	12/2/08 5	12/9/08 5						
Initials	GB	GB	GB						
SAMPLE PREPARATION MEASUREMENTS (100% concentration)									
Sample Bottle ²	A-1	B-1	B-1	C-1,2	C-1,2	C-1,2	C-1,2	B-1	
Prep Temperature (°C)	25	25	25	25	24	24	25	25	
Conductivity (uS/cm) ⁴	620	618	NA	450	NA	NA	NA	628	
D.O. (mg/l) After Warming	9.3	10.7	10.6	9.8	8.7	8.5	7.5	11.6	
Aeration Time (min)	3.0	4.0	4.0	1.0	1.0	6.0	-	4.5	
Adjusted D.O.	8.2	8.2	8.2	8.2	8.2	8.3	-	8.2	
Final pH (S.U.)	7.65	7.82	7.85	7.48	7.66	7.60	7.10	7.87	
Tot. Res. Chlorine (mg/l) ⁵	N.D.	N.D.	N.A.	N.A.	N.D.	N.D.	N.D.	N.A.	
Sample Filtered (60 um)?	YES	YES	YES	YES	YES	YES	YES	YES	
Date/Time	12/10/08 5	12/9/08 30	12/8/08 25	12/9/08 50	12/10/08 55	12/11/08 40	12/12/08 35	12/7/08 40	
Initials	GB	GB	PB	PB	BH	GB	AG	PB	
DILUTION WATER CHARACTERISTICS									
Vat Number	1	1	2	2	1	1	2	2	
Temperature (°C)	25	25	25	25	24	24	25	25	
Conductivity (uS/cm)	299	304	293	296	297	302	302	292	
D.O. (mg/l)	8.2	8.2	8.2	8.2	8.2	8.3	8.2	8.2	
pH (S.U.)	7.60	7.62	7.64	7.63	7.71	7.64	7.62	7.65	
Hardness (mg/l CaCO ₃)	92	92	82	82	100	100	94	82	
Alkalinity (mg/l CaCO ₃)	59	59	57	57	63	63	59	57	
Date/Time	12/16/08 45	12/2/08 25	12/8/08 40	12/9/08 45	12/10/08 25	12/11/08 30	12/12/08 30	12/20/08 5	
Initials	GB	GB	PB	PB	BH	AG	GB	GB	

¹Q.L. = Quantification Limit, N.D. = Not Determined/Measured, NA = Not Applicable
²Ninth character of Laboratory Sample I.D. (on chain of custody form) and bottle number in collection series (e.g. "A-2" is sample bottle number 2 from "A" collection). Together with project ID below constitutes entire sample bottle ID.
³C-Clear, O-Opaque, T-Turbid, S-Solids (SI-Slight, M-Moderate, H-Heavy), Y-Yellow, B-Brown, BI-Black, G-Green
⁴Conductivity measured on first use of sample only
⁵Total residual chlorine measured after sample prep only if present in initial sample characterization

Peer Rev by GB/PB Date 12/12/11 PROJECT I.D. EMTN1116
 (First 8 characters of Laboratory Sample ID)

18

PO# 508398



6400 Enterprise Court, Gloucester, VA 23061
PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

EMI #
1534.25

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011H Rev. 1/14/11)

Lab Sample ID
(Lab Use Only)

E	M	I	N	I	I	G	
A	A	A	A	Y	Y	N	N

Project ID

A
A

Spl

CBI Login # 11-0956

FACILITY INFORMATION

CLIENT/FACILITY NAME <i>SCOTT CO. HOLSTON WWTP</i>	CONTACT & PHONE # <i>EMI 276-679-6544</i>	
NPDES PERMIT NO <i>VA 0067351</i>	OUTFALL # OR LOCATION <i>001</i>	
SAMPLE CHLORINATED?	SAMPLE DECHLORINATED? <i>UV light</i>	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?
TESTS SPECIES OR EPA METH #	<i>C. dubia</i>	ACUTE <input type="checkbox"/> CHRONIC <input checked="" type="checkbox"/>
REQUESTED: SPECIES OR EPA METH #	<i>P. promelas</i>	ACUTE <input type="checkbox"/> CHRONIC <input checked="" type="checkbox"/>
OTHER TESTS:		

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. **IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.**

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME
-------------	-------------	---------------

COMPOSITE SAMPLE INFORMATION

SAMPLE START DATE & TIME <i>12-04-11 at 0850</i>	SAMPLE END DATE & TIME <i>12-05-11 at 0903</i>	AUTOSAMPLER TEMP. (°C) <i>2°C</i>	
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION	NUMBER SUBSAMPLES SET VOLUME SUBSAMPLE <i>360 ml</i>	VOL (ml) SUBSAMPLES SET VOLUME FLOW <i>PER 33K GAL.</i>	TIME INCREMENT TOTAL VOLUME <i>0.82 MG</i>

FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
<i>12</i>	<i>7.6</i>	<i>12-5-11 NA 2°C</i>	<i>ND</i>	<i>12-5-11 at 0908</i>	<i>DWP</i>

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS: *UV light used*

DAVID PORTER - Field Tech (PRINTED NAME/AFFILIATION SAMPLER/ANALYST)  (SIGNATURE) *12-5-11* (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
	<i>12-5-11</i>	<i>1315</i>	<i>EMI Lab Cooler</i>
<i>Cooler</i>	<i>12-5-11</i>	<i>1535</i>	<i>Fug Staley</i>

SHIPPING METHOD: UPS FEDEX HAND DELIVERY

DO NOT SHIP FEDEX STANDARD OVERNIGHT
SAMPLES MUST ARRIVE AT LAB BY NOON

CONDITION ON ARRIVAL: ACCEPTABLE OTHER

SAMPLE TEMP: (°C) *1* ARRIVED ON ICE? Y N CUSTODY SEAL: INTACT BROKEN ABSENT

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.



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 PO# 508398
 6400 Enterprise Court, Gloucester, VA 23061
 PH: 804-694-8285, FAX: 804-695-1129
 www.coastalbio.com

EMI #
 1534.25
 Tues 12-6-11

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011H Rev. 1/14/11)

Lab Sample ID
 (Lab Use Only)

E	M	I	N	I	L	L	L
A	A	A	A	Y	Y	N	N

Project ID

3
 A
 Spi

CBI
 Login # 11-0964

FACILITY INFORMATION

CLIENT/FACILITY NAME <u>HOLSTON WWTP</u>		CONTACT & PHONE # <u>EMI 276-679-6584</u>	
NPDES PERMIT NO <u>VA 0067351</u>		OUTFALL # OR LOCATION <u>001</u>	
SAMPLE CHLORINATED?	SAMPLE DECHLORINATED? <u>NO</u>	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?	
TESTS	SPECIES OR EPA METH #	<u>C. dubia</u>	ACUTE <input checked="" type="checkbox"/> CHRONIC <input checked="" type="checkbox"/>
REQUESTED:	SPECIES OR EPA METH #	<u>P. promelas</u>	ACUTE <input checked="" type="checkbox"/> CHRONIC <input checked="" type="checkbox"/>
OTHER TESTS:			

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME
-------------	-------------	---------------

COMPOSITE SAMPLE INFORMATION

SAMPLE START DATE & TIME <u>12-5-11 at 0915</u>	SAMPLE END DATE & TIME <u>12-6-11 at 0919</u>	AUTOSAMPLER TEMP. (°C) <u>2°C</u>
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION	NUMBER SUBSAMPLES	VOL (ml) SUBSAMPLES
	SET VOLUME SUBSAMPLE <u>320 mL/sample</u>	SET VOLUME FLOW SAMPLE PER <u>40 KGAL</u>
		TOTAL VOLUME <u>1.2 MG</u>

FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
<u>14</u>	<u>7.5</u>	<u>2°C</u>	<u>ND</u>	<u>12-6-11 at 0925</u>	<u>DWP</u>

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS: APPROX 1/2" RAIN OVER SAMPLING PERIOD

DAVID PORTER - Field Tech (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) [Signature] (SIGNATURE) 12-6-11 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
<u>[Signature]</u>	<u>12-6-11</u>		
<u>[Signature]</u>	<u>12/6/11</u>	<u>1420</u>	<u>[Signature]</u>

SHIPPING METHOD: UPS FEDEX HAND DELIVERY

DO NOT SHIP FEDEX STANDARD OVERNIGHT. SAMPLES MUST ARRIVE AT LAB BY NOON.

CONDITION ON ARRIVAL: ACCEPTABLE OTHER

SAMPLE TEMP: (°C) 1 ARRIVED ON ICE? Y N CUSTODY SEAL: INTACT BROKEN ABSENT

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-5° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

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6400 Enterprise Court, Gloucester, VA 23061
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EMI
1534.25
12-8-11

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011H Rev. 1/14/11)

Lab Sample ID
(Lab Use Only)

E	M	I	N	I	C	I	6	C
A	A	A	A	Y	Y	N	N	A
Project ID								Spl

CBI Login # <u>11-0973</u>

FACILITY INFORMATION

CLIENT/FACILITY NAME <u>Holston WWTP</u>	CONTACT & PHONE # <u>EMI- 276-679-6544</u>
NPDES PERMIT NO <u>VA 0067351</u>	OUTFALL # OR LOCATION <u>001</u>
SAMPLE CHLORINATED?	SAMPLE DECHLORINATED? <u>UV Light</u>
IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?	
TESTS REQUESTED:	SPECIES OR EPA METH # <u>C. dubia</u> ACUTE <input type="checkbox"/> CHRONIC <input checked="" type="checkbox"/>
	SPECIES OR EPA METH # <u>P. promelas</u> ACUTE <input type="checkbox"/> CHRONIC <input checked="" type="checkbox"/>
OTHER TESTS:	

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME
-------------	-------------	---------------

COMPOSITE SAMPLE INFORMATION

SAMPLE START DATE & TIME <u>12-7-11 at 0917</u>	SAMPLE END DATE & TIME <u>12-8-11 at 0850</u>	AUTOSAMPLER TEMP. (°C) <u>2° C</u>
TIME OR FLOW PROPORTIONAL	NUMBER SUBSAMPLES <u>24 (2 PUMPS)</u>	VOL (ml) SUBSAMPLES <u>380 ml</u>
COMPOSITE INFORMATION	SET VOLUME SUBSAMPLE	TIME INCREMENT <u>PER HOUR</u>
	SET VOLUME FLOW	TOTAL VOLUME

FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
<u>10° C</u>	<u>7.6</u>	<u>2° C</u>	<u>ND</u>	<u>12-8-11 at 0855</u>	<u>DWP</u>

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS: 2 PUMPS USED - TIME PROPORTIONAL ONLY, BUBBLER FLOW FASSET LOST W/ HEAVY FLOW, ~2" RAIN DURING PERIOD

DAVID PORTER - Field Tech (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) [Signature] (SIGNATURE) 12-8-11 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
<u>[Signature]</u>	<u>12-8-11</u>	<u>1140</u>	<u>LTK Cooper-EMI</u>
<u>Cooper</u>	<u>12/8/11</u>	<u>1435</u>	<u>[Signature]</u>

SHIPPING METHOD: UPS FEDEX HAND DELIVERY

DO NOT SHIP FEDEX STANDARD OVERNIGHT. SAMPLES MUST ARRIVE AT LAB BY NOON.

CONDITION ON ARRIVAL: ACCEPTABLE OTHER

SAMPLE TEMP: (°C) 1 ARRIVED ON ICE? Y N CUSTODY SEAL: INTACT BROKEN ABSENT

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.